

CLAIMS

What is claimed is:

- 5 1. A distributed system, comprising:
a set of nodes that communicate via a set of
sub-nets of the distributed system, the nodes each
having a local clock, the nodes maintaining time
synchronization among the local clocks by
10 transferring a set of timing data packets via the
sub-nets;
time synchronization bridge that coordinates
time synchronization among the sub-nets in response
to the timing data packets.
- 15 2. The distributed system of claim 1, wherein the
time synchronization bridge maintains an internal
time and synchronizes the internal time to a local
clock on a selected one of the sub-nets.
- 20 3. The distributed system of claim 2, wherein the
time synchronization bridge uses the internal time to
synchronize the local clocks on the remaining ones of
the sub-nets.
- 25 4. The distributed system of claim 1, wherein the
time synchronization bridge maintains an internal
time and synchronizes the local clocks to the
internal time.
- 30 5. The distributed system of claim 1, wherein the
time synchronization bridge determines a master clock
in the distributes system in response to a set of

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clock meta-data in the timing data packets and a set of clock meta-data associated with an internal time maintained by the time synchronization bridge.

5 6. The distributed system of claim 5, wherein the clock meta-data associated with the internal time of the time synchronization bridge indicates a GPS time source.

10 7. The distributed system of claim 5, wherein the clock meta-data associated with the internal time of the time synchronization bridge indicates an atomic clock time source.

15 8. The distributed system of claim 5, wherein the clock meta-data includes an indication of quality of the corresponding local clock.

20 9. The distributed system of claim 5, wherein the clock meta-data includes an indication a number of other time synchronization bridges traversed by the corresponding timing data packet.

25 10. The distributed system of claim 5, wherein the clock meta-data includes an indication that the corresponding local clock is preferred as the master clock.

30 11. A time synchronization bridge, comprising:
 means for maintaining an internal time in the time synchronization bridge;
 a set of synchronization modules corresponding to a set of sub-nets, each synchronization module

having means for adjusting the internal time in response to a set of timing data packets received via the corresponding sub-net and means for distributing the internal time via the corresponding sub-net.

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12. The time synchronization bridge of claim 11, wherein each synchronization module includes a clock and means for synchronizing the clock in response to the timing data packets received via the corresponding sub-net.

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13. The time synchronization bridge of claim 12, wherein the means for maintaining an internal time includes means for selecting one of the clocks as a primary clock in the time synchronization bridge such that the clocks synchronize to the primary clock.

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14. The time synchronization bridge of claim 13, wherein the means for selecting includes means for selecting the primary clock in response to a set of clock meta-data contained in the timing data packets.

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15. The time synchronization bridge of claim 11, wherein the means for maintaining an internal time comprises a central clock.

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16. The time synchronization bridge of claim 15, wherein each synchronization module includes means for adjusting the central clock in response to the timing data packets received via the corresponding sub-net and means for selecting one of the synchronization modules to adjust the clock.

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further comprising a GPS time source.

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